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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,052	07/18/2003	Tomoyuki Fujii	811_035	3965

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EXAMINER	
SAVAGE, JASON L	
ART UNIT	**PAPER NUMBER**
1775	

DATE MAILED: 07/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,052	FUJII ET AL.	
	Examiner	Art Unit	
	Jason L. Savage	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-18 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 18 July 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 20030718.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 14 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of copending Application No. 10/846,277 (See US Patent Publication 2004/0209108). Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 5 of copending Application 10/846,277 recites an adhesive joining material which joins a ceramic member and a metal member wherein the joining material is an alloy of indium and the alloying element may be selected from titanium and gold.

The claims differ from that of the present Application in that claim 14 includes the limitation that the alloying component of indium be capable of reducing the melting point of indium. However, as was disclosed in the present specification in paragraph (0023), gold and titanium are two of the alloying elements that are recited as being suitable for use in the indium alloy of the

present invention. As such, claim 5 of copending Application 10/846,277 meets the claim limitations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by JP'330 (JP 08-008330).

JP'330 teaches a joined body comprising a first ceramic electrostatic chuck member and a second metal base member which is joined by an adhesive composed of indium (CLAIMS par. [claim1]). JP'330 further teaches that the indium adhesive is an indium alloy which comprises melting point reducers of Ag and Ti such as in an alloy of In-3%Ag-5%Ti (DETAILED DESCRIPTION [Example 2]).

Regarding claim 15, JP'330 teaches an indium alloy containing the melting point reducer of silver (DETAILED DESCRIPTION [Example 2]). JP'330 further

teaches that indium alloys containing tin are known (DETAILED DESCRIPTION [0005, lines 14-19]).

Regarding claims 16-17, JP'330 teaches the ceramic member is a semiconductor supporting electrostatic chuck member (CLAIMS par. [claim1]). Regarding the limitation in claim 17 that the metal member is a cooling flange, although JP'330 does not explicitly recite the metal member used in such a capacity, it does teach that use of metal base structures as cooling devices for electrostatic chucks is known (DETAILED DESCRIPTION [0002]). As such, despite the lack of a positive recitation that the metal base of JP'330 is a cooling flange, it is the position of the Examiner that the metal base member of JP'330 is in fact a cooling flange.

Regarding claim 18, JP'330 further teaches that the ceramic and metal members desirably have through tube holes which have a sealing member such as a metal plating (DETAILED DESCRIPTION par. [0006]). JP'330 further teaches that the holes are filled with soft solder to mitigate the thermal stress between the members and to prevent poor joining between the members (DETAILED DESCRIPTION par. [005]). The thusly filled metal plated holes of JP'330 would meet the claim limitation of having a sealing member provided between the holes and the adhesive layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fujii (English Machine Translation of JP 2003-080375).

Fujii teaches a joined body and method of making comprising a first ceramic electrostatic chuck member **10** and a second metal cooling flange **12** wherein an adhesive foil containing indium is placed between the two members to provide a laminate wherein the laminate is subsequently subjected to heating and isostatic pressing to form the joined body (DETAILED DESCRIPTION par. [0030-0032]).

Regarding claims 1, 13 and 14 and the limitation that the indium adhesive comprise at least a component capable of reducing the melting point of indium, Fujii teaches the indium may be alloyed with gold, silver or tin (DETAILED DESCRIPTION par. [0019]). Fujii further teaches that the adhesive indium layer **2** comprise two alloying metal layers **1A** and **1B** which may be formed from gold and titanium (DETAILED DESCRIPTION par. [0017]). As such, Fujii anticipates the limitation in that it teaches the indium joining layer may comprise melting point reducers such as gold, silver, tin and titanium.

In the alternative, it would have been obvious to one of ordinary skill at the time of the invention to have used the melting point reducing alloying elements

such as gold, silver, tin and titanium in the indium adhesive since Fujii specifically recites them as being suitable for use.

Regarding the limitation that the laminate is heated to a temperature in the solid-liquid coexisting range of the alloys, Fujii teaches that the maximum heating temperature is just below the melting point of the adhesive material (DETAILED DESCRIPTION par. [0008]).

Regarding claims 2 and 15, Fujii teaches indium may be alloyed with tin and silver (DETAILED DESCRIPTION par. [0019]).

Regarding claim 3, Fujii teaches the heating temperature does not exceed 155°C (DETAILED DESCRIPTION par. [0024]).

Regarding claims 4-6, Fujii teaches teaches vacuum packaging the laminate, containing the laminate in a sealed container which is filled with inert gas (CLAIMS par. [Claim 2]). Fujii further teaches the package is subsequently heated and isostatically pressed and that the pressing is continued until the temperature was dropped back to room temperature (DETAILED DESCRIPTION par. [0032]).

Regarding claim 7, Fujii teaches the indium adhesive is provided as a foil (DETAILED DESCRIPTION par. [0031]).

Regarding claims 8-9, Fujii teaches that indium melting point reducing materials **1A** may be provided between the adhesive **2** and the first ceramic member **10** and that it is provided as a film (Figure 4).

Regarding claims 10-11 and 16-17, Fujii teaches the first ceramic member is a semiconductor wafer supporting electrostatic chuck member **10** and the

second metal member is a cooling flange **12** (DETAILED DESCRIPTION par. [0030]).

Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii (English Machine Translation of JP 2003-080375) in view of JP'330 (JP 08-008330).

Fujii teaches what is set forth above but it is silent to forming holes in the members and providing an air-tight sealing member between the holes.

JP'330 teaches a joined body comprising a first ceramic electrostatic chuck member and a second metal base member which is joined by an adhesive composed of indium (CLAIMS par. [claim1]). JP'330 further teaches that the ceramic and metal members desirably have through tube holes which have a sealing member such as a metal plating (DETAILED DESCRIPTION par. [0006]). JP'330 also teaches that the holes are filled with soft solder to mitigate the thermal stress between the members and to prevent poor joining between the members (DETAILED DESCRIPTION par. [005]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed metal plated through holes in the members of the joined body of Fujii and subsequently filled the holes with solder to form a sealed structure such as is taught by JP'330 in order to have mitigated the thermal stresses and thereby form a body having improved joining.

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al (US 2003/0011392).

Adams teaches an electrostatic chuck having a first member **6** and a second member **4** formed of a metal (0017). Adams further teaches the members are joined with an adhesive material such as tin-indium solder (0025).

Adams is silent to the first member **6** being ceramic, however given the teaching of the joined body being an electrostatic chuck (0010), using conventional material known to be suitable for use in electrostatic chuck devices such as ceramics would have been obvious to one of ordinary skill at the time of the invention. The use of tin-indium solder would meet the limitation of indium containing a melting point reducer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Savage
6-23-05

JENNIFER MCNEIL
PRIMARY EXAMINER